

**Table 2**

Summary of the clinical characteristics of COPD patients identified as most relevant by clinical experts.

| Category                             | Continuous Variable for Quantitative Analysis | Discrete Variable  | Bins                   | Characteristics                          | Differentially expressed genes at FDR < 0.05 |
|--------------------------------------|---|--|------------------------|--|--|
| Chronic Bronchitis                   | Not applicable                                | Cough with Phlegm for at least 3 mos/yr for at least 2 years | low extreme (Q1 = 64)  | neither chronic cough nor chronic phlegm | 0  |
|                                      |   |  | high extreme (Q4 = 46) | both chronic cough and chronic phlegm    |  |
| History of Exacerbations             | Number of exacerbations per year              | 2 or more per year and less than 2 per year                  | low extreme (Q1 = 26)  | 0 - Never                                | 0  |
|                                      |   |  | high extreme (Q4 = 17) | 3 - Always                               |  |
| Body Mass Index (Kg/m <sup>2</sup> ) | BMI   | BMI < 21, 21-30, > 30  | low extreme (Q1 = 18)  | BMI < 21                                 | 0  |
|                                      |   |  | high extreme (Q4 = 35) | BMI > 30                                 |  |
| Airflow Limitation severity          | FEV1 (% predicted)                            | GOLD Stage   | low extreme (Q1 = 69)  | < 2-GOLD stage                           | 6,049  |
|                                      |   |  | high extreme           | >4 GOLD stage                            |  |

(Q4 = 13)

6 Minute Walk Distance

Quantitative 6MWD

< 350 meters and > 350 meters

low extreme (Q1 = 38)

>350 meters

0

high extreme (Q4 = 101)

>350 meters

Radiologist Emphysema

Emphysema severity category:

low extreme (Q1 = 40)

0-1.5 -No emphysema

0

assessment

Not affected (N): 0

Yes/No/Uncertain

high extreme (Q4 = 45)

4-5 - severe

Trivial (T): 1

Mild (M) 5-25%: 2

Moderate (O) 25-50%: 3

Severe (S) 50-75%: 4

Very Severe (V) > 75%: 5

Densitometric Emphysema

Emphysema at -950 HU

Emphysema >10% (Yes/No)

low extreme (Q1 = 37)

Emphysema >10% = No

0

high extreme (Q4 = 95)

Emphysema >10% = yes

|                   |   |  |                        |                                     |   |
|-------------------|---|--|------------------------|-------------------------------------|---|
| CT Airway Disease | Pi10 (Square root of wall area of 10 mm internal perimeter airways) | GOLD Stages 2-4 with Emphysema < 5% (Yes) or > 5% (No) | low extreme (Q1 = 63)  | Trivial (< %5)                      | 0 |
|                   |   |  | high extreme (Q4 = 33) | Severe (50-75%, very severe (>75%)) |   |

Columns 4-6 show the results of the differential gene expression analysis comparing the subjects of the defined bins or extremes for each characteristic. Q1/Q4 refer to the number of patients in the respective group (1st and 4th "quartile"). The only single characteristic yielding significantly differentially expressed genes is the degree of airflow limitation as given by GOLD stage (GOLDCD).

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